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Better Wheat for a Warming Planet

PULLMAN, Wash.—Washington State University will lead a new effort to develop wheat varieties that are better at tolerating the high temperatures found in most of the world's growing regions—temperatures that are likely to increase with global warming.

The research will be supported by the U.S. Agency for International Development (USAID), the Indian Council of Agricultural Research (ICAR) and the Directorate of Wheat Research (DWR), and is part of the U.S. government's global hunger and food security initiative, Feed the Future.

Researchers aim to have their first set of climate-resilient varieties in five years. The research will focus on the North Indian River Plain, which is home to nearly one billion people and faces challenges such as limited water and rising temperatures, said Kulvinder Gill, project director and the Vogel Endowed Chair for Wheat Breeding and Genetics

Gill said that while the effort is critical to support food security, the results will reach far beyond the North Indian River Plain. They will more broadly will contribute to Feed the Future and partners' efforts to more efficiently and effectively address global food security, particularly with respect to the challenge of global climate change, limited resources, and a growing population.

"The newly developed 'Climate Resilient' cultivars will be better equipped to deal with these challenges," he said, adding The project will benefit all wheat growing regions of the world, as heat during flowering is an issue in most of the wheat growing regions."

The researchers will combine conventional breeding and newly developed breeding tools to identify genes or sets of genes associated with heat tolerance, a rarely studied trait with an outsized importance in yields. A wheat plant's productivity falls off dramatically when temperatures rise above 82°F, as every rise of every couple of degrees above that in a plant's flowering stage cuts yields by up to four percent. Flowering results in the plant setting its seed, which is the part ultimately harvested and milled for food.

Support from USAID will leverage over $11 million from other partners, and fund research at WSU and project-related activities in India, said Gill. The effort will include a team of researchers from Kansas State University, the seed manufacturer and processor DuPont Pioneer, and two national institutes (Directorate of Wheat Research and National Bureau of Plant Genetics Resources), four universities (CCS Meerut University, GB Pant University, Punjab Agricultural University, and Rajendra Agricultural University) and two private companies in India. As many as 35 PhD students and 30 post-doctoral or research fellows will also be involved in the effort.

About Feed the Future: Feed the Future is the U.S. Government's global hunger and food security initiative. With a focus on smallholder farmers, particularly women, Feed the Future supports partner countries in developing their agriculture sectors to spur economic growth that increases incomes and reduces hunger, poverty, and undernutrition. More information: **www.feedthefuture.gov**

*This press release originally **appeared** on the USAID website.*

Additional Resources:

- **Feed the Future Research Strategy**
- **Learn more about Feed the Future and research**
- **News release from Washington State University**